

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended): A method of controlling a continuously-variable drive train of a motor vehicle, said drive train comprising an engine unit having an outlet shaft driving a wheel shaft via a variable-speed transmission adapted to modify ~~the a~~ ratio of ~~the a~~ speed of rotation of the wheel shaft and of the engine outlet shaft in a continuous manner, in which method, a unit time interval (t_i) is defined and over each unit time interval the following steps are performed:

- estimating ~~the a~~ value of an acceleration control variable (P_1);
- estimating ~~the a~~ value of ~~the a~~ vehicle speed (V);
- estimating ~~the a~~ value of ~~the a~~ speed of rotation (ω) of the engine outlet shaft; and
- controlling the speed of rotation (ω) of the engine outlet shaft as a function of said

estimated values (P_1 , V , ω); and

wherein said control is performed by implementing the following steps:

- determining a mode of operation from amongst a permanent mode and a transient mode, as a function of a set of variables comprising said estimated values (P_1 , V , ω); and

- correcting the value of the speed of rotation (ω) of the outlet shaft in such a manner that:

- if the mode has been determined as being the permanent mode, then ~~the a~~ moving average (L') of ~~the a~~ gear ratio (L) over a period (T) of a plurality of unit time intervals

(t_i) lies between a first threshold value (S_1) that is negative and a second threshold value (S_2) that is positive; and

· if the mode has been determined as being the transient mode, then said moving average (L') of the gear ratio (L) lies outside the range of values defined by the first and second threshold value (S_1 , S_2),

wherein ~~the a~~ slope of ~~the a~~ road is estimated and the set of variables includes the estimated value for the slope, and

wherein a mode-determination period is defined, and it is determined that the mode of operation is transient mode in at least one of the following circumstances:

· over said mode-determination period, ~~the a~~ variation in the speed value (V) and ~~the a~~ variation in the slope value are, in absolute value, less than respective predetermined threshold values, and ~~the a~~ variation in ~~the a~~ value of the acceleration control variable is, in absolute value, greater than a predetermined threshold value;

· over said mode-determination period, the variation in the value of the acceleration control variable and the variation in the value of the slope are, in absolute value, less than respective predetermined threshold values, and the variation in the speed value is, in absolute value, greater than a predetermined threshold value; and

· over said mode-determination period, the variation in the value of the acceleration control variable (P_1) and the variation in the value of the speed variable (V) are, in absolute

value, less than respective predetermined threshold values, and the variation in the slope value is, in absolute value, greater than a predetermined threshold value,

~~so as to enable enabling~~ sensations of skidding, variations in engine speed, and noise characteristics of the engine to be brought close to those corresponding to drive trains with manual gearboxes.

2. (Previously presented): A control method according to claim 1, wherein the first threshold value (S_1) is, in absolute value, equal to the second threshold value (S_2).

3. (Previously presented): A control method according to claim 1, wherein the period (T) is of a duration greater than one second, and the first threshold value (S_1) and the second threshold value (S_2) has absolute values lying in the range 0.35 km/h to 0.45 km/h per 1000 rpm/s.

4. (Previously presented): A control method according to claim 1, wherein a duration (DT_0) of a stage in transient mode (T_0) is limited to a value lying between a third threshold (S_3) and a fourth threshold (S_4).

5. (Previously presented): A control method according to claim 4, wherein the third threshold value (S_3) is substantially equal to 0.3 s.

6. (Previously presented): A control method according to claim 4, wherein the fourth threshold value (S_4) is substantially equal to 0.7 s.

7. (Previously presented): A control method according to claim 1, wherein an absolute value in variation of a mean (ΔL_0) of the gear ratio (L) over an operating stage in transient mode between two consecutive mode changes is limited to a value lying between fifth and sixth threshold values (S_5 , S_6) that are positive.

8. (Currently amended): A control method according to claim 7, wherein during ~~the~~an initial mode change of operating stage into transient mode, ~~the~~a direction of variation in the gear ratio (L) is determined and:

- if the direction of variation is positive, then first and second fixed values are allocated respectively to the fifth threshold value (S_5) and to the sixth threshold value (S_6); and

- if the direction of variation is negative, then third and fourth fixed values are allocated respectively to the fifth threshold value (S_5) and to the sixth threshold value (S_6).

9. (Previously presented): A control method according to claim 8, wherein the first fixed value is greater than the third fixed value, and the second fixed value is greater than the fourth fixed value.

10. (Previously presented): A control method according to claim 9, wherein the first fixed value is substantially equal to 35 km/h per 1000 rpm.

11. (Previously presented): A control method according to claim 9, wherein the second fixed value is substantially equal to 80 km/h per 1000 rpm.

12. (Previously presented): A control method according to claim 9, wherein the third fixed value is substantially equal to 25 km/h per 1000 rpm.

13. (Previously presented): A control method according to claim 9, wherein the fourth fixed value is substantially equal to 50 km/h per 1000 rpm.

14. (Currently amended): A control method according to claim 1, wherein if the mode is determined as being the permanent mode, ~~the a~~ value of the gear ratio (L) is limited at each instant to lie within a range of values centered on a mean value equal to the gear ratio (L) at ~~the~~ an initial instant of ~~the an~~ operating stage in permanent mode plus ~~the a~~ product of said moving average (L') multiplied by ~~the a~~ period of time between said initial instant and the instant in question, said range being of predetermined amplitude (E).

15. (Previously presented): A control method according to claim 14, wherein said amplitude (E) is substantially equal to 50 km/h per 1000 rpm.

16. (Previously presented): A control method according to claim 9, wherein the acceleration control variable (P₁) represents the position of the accelerator pedal.

17-18. (Canceled)

19. (Previously presented): A control method according to claim 1, wherein the moving average (L') of the gear ratio has a fixed value during each operating stage in the permanent mode.

20. (Currently amended): A control method according to claim 19, wherein if the mode is determined as being the permanent mode, ~~the a~~ value of the gear ratio (L) is limited at each instant to lie within a range of values centered on a mean value equal to the gear ratio (L) at ~~the~~ an initial instant of each operating stage in permanent mode plus ~~the a~~ product of said moving average (L') multiplied by ~~the a~~ period of time between said initial instant and the instant in question, said range being of predetermined amplitude (E).